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Three-photon entangled states generated by spontaneous parametric down-conversion in a cavity

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Abstract

The possibility of generation of three-photon correlated states (triphotons) by spontaneous parametric down-conversion in a cubic nonlinear medium which is placed in a cavity is analyzed. It is shown that the number of generated photons per mode is proportional to the square cavity finesse and to the number of longitudinal cavity modes which satisfy the condition of triple resonance. The number of photons per mode and the counting rate of a detector are estimated for typical experimental conditions.

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Keywords

Biphoton, Cavity, Spontaneous parametric down-conversion, Triphoton